MYCOTAXON

Volume 107, pp. 349–352 *January–March 2009*

Sporisorium spinulosum sp. nov. (*Ustilaginaceae*) on *Capillipedium* (*Poaceae*) from China

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Abstract—A new species, *Sporisorium spinulosum* on *Capillipedium parviflorum* is described. It was collected from Gaoligong Mountains of Yunnan Province in China.

Key words—*Ustilaginomycotina*, smut fungi, taxonomy

During the mycological expedition to Gaoligong Mountains of Yunnan Province in 2008, the authors and their colleagues collected many smut fungi. Among them, a new *Sporisorium* species on *Capillipedium parviflorum* was discovered. Its sori destroy the whole inflorescence and possess a long, single columella. According to Vánky (2004), 15 *Sporisorium* species have been reported on *Bothriochloa*, *Capillipedium,* and *Dichanthium*. The new species is similar to *Sporisorium tenue* (Syd. & P. Syd.) Vánky (Vánky 2004) and *Sporisorium taianum* (Syd.) L. Guo (Guo 1990) in having relatively small ustilospores. It differs from *S. tenue* in having a single unbranched columella, smooth surface between ustilospore spines as seen in SEM, uneven ustilospore walls, sterile cells in chains, and no spore balls. In comparison, *S. tenue* has a simple or ramified columella, forms ephemeral spore balls, has dense warts between ustilospore spines in SEM, even ustilospore walls, and irregular groups of sterile cells (Vánky 2004). The new species differs from *S. taianum* in having sori throughout the entire inflorescence and ustilospores with minute and sparse spines and from *S. taianum,* which has ustilospores with minute and dense warts and sori in the spikelets. The new species is described as:

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Sporisorium spinulosum S.H. He & L. Guo, **sp. nov.** FIGS. 1–4

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Sori in inflorescentiis evoluti, longe cylindrici, 35–110 × 1–1.5 mm, a vagina folii supremi partim tecti, primo peridio cinerascentibrunneo cooperti, quo longitudinaliter rupto. Columella singula. Massa sporarum atrobrunnea, semiagglutinata vel pulverulenta. Ustilosporae subglobosae, ovoideae, ellipsoideae vel leniter irregulares, 6.5–9 × 5–7.5 µm, flavidobrunneae, saepe pallidiores in unilatis; pariete inaequaliter crasso, 0.5–1 µm, subtiliter sparse echinulato. Cellulae steriles subglobosae, ellipsoideae vel irregulares, 7.5–16.5 × 4–12.5 µm, hyalinae vel flavidae, in catenis; pariete 1–2 µm crasso, leves.

Sori in the whole inflorescence, long cylindrical, 35–110×1–1.5 mm, partly hidden by the uppermost leaf sheath, at first covered by a greyish-brown peridium which later ruptures longitudinally. Columella single, not ramified and often bent at the top. Spore mass blackish-brown, semi-agglutinated to powdery. Ustilospores subglobose, ovoid, ellipsoidal or slightly irregular, 6.5–9 × 5–7.5 µm, yellowish-brown, often paler on one side; wall unevenly thickened, 0.5–1 µm, finely and sparsely echinulate as seen by SEM. Sterile cells subglobose, ellipsoidal or irregular, with one or two flattened sides, 7.5–16.5 × 4–12.5 µm, hyaline or pale yellow, in chains; wall 1–2 µm thick, smooth.

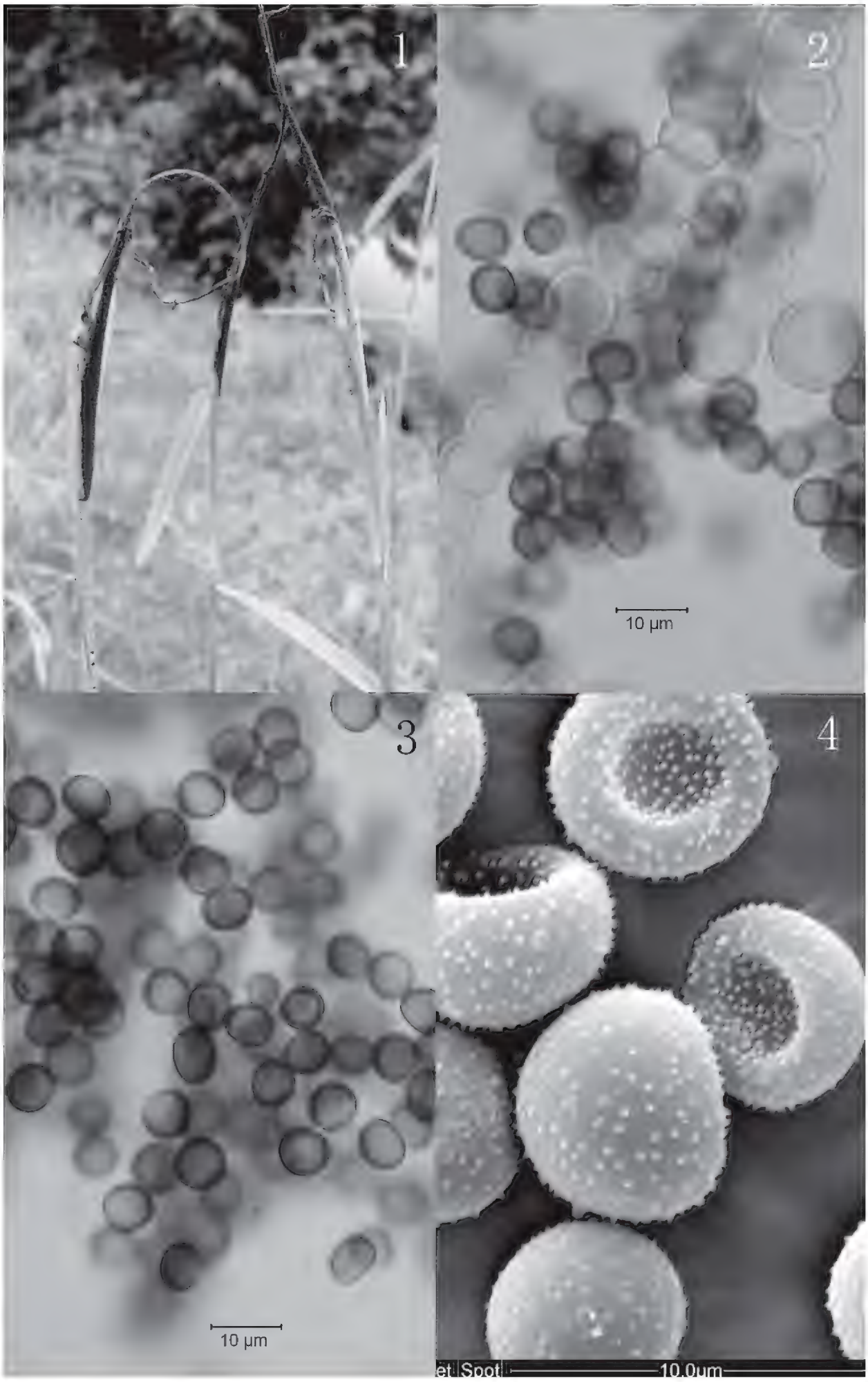
SPECIMENS EXAMINED—On *Capillipedium parviflorum* (R. Br.) Stapf (*Poaceae*), China: Yunnan, Fugong, Wangjidu, alt. 1400 m, 28. VIII. 2008, S.H. He, Y.F. Zhu & L. Guo 2229, HMAS 193085 (holotype), HUV 21557 (isotype).

To date, six species of *Sporisorium* have been recorded on *Bothriochloa*, *Capillipedium* and *Dichanthium* in China. They are: 1) *Sporisorium andropogonis* (Opiz) Vánky (Ling 1953, Guo 1990), 2) *S. andropogonis-annulati* (Bref.) S.R. Wang & M. Piepenbr. (Wang & Piepenbring 2002), 3) *S. doidgeae* (Zundel) Langdon & Fullerton (Ling 1945, Ling & Chen 1945, Guo 1990, Vánky 2004), 4) *S. reticulatum* (B. Liu, Z.Y. Li & Du) Vánky (Liu et al. 1979, Vánky 2004), 5) *S. taianum* (Sydow 1929, Guo 1990) and 6) *S. spinulosum* (in this paper).

Acknowledgements

The authors would like to express their deep thanks to Kálmán Vánky (Tübingen, Germany) for serving as pre-submission reviewer and sending SEM pictures of the type specimen of *Sporisorium tenue*, to Roger G. Shivas (BRIP, Australia) for serving as pre-submission reviewers, to Shaun Pennycook for nomenclatural review, to Chen Wenli (Institute of Botany, Chinese Academy of Sciences) for identifying the host plant, and to Liang Jingnan for assistance with SEM photographs. This study was supported by the National Natural Science Foundation of China (No. 30670005).

FIGS. 1–4. *Sporisorium spinulosum* on *Capillipedium parviflorum* (HMAS 193085, holotype). 1. Sori. 2. Ustilospores and sterile cells as seen by LM. 3. Ustilospores as seen by LM. 4. Ustilospores as seen by SEM.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Literature cited

Guo L. 1990. The genera *Sorosporium* and *Sporisorium* in China. Mycosystema 3: 67–88.

Ling L. 1945. A contribution to the knowledge of the *Ustilaginales* in China. Mycol. Papers Imp. Mycol. Inst. 11: 1–12.

Ling L. 1953. The *Ustilaginales* of China. Farlowia 4: 305–351.

Ling R, Chen TL. 1945. Notes on some Fukien species of the family *Ustilaginaceae.* Research Bulletin, The Fukien Academy 1: 1–24.

Liu B, Li ZY, Du F. 1979. A new species of the genus *Sphacelotheca.* J. Shanxi Univ. (Natural Science Edition) (3–4): 37–39.

Sydow H. 1929. Fungi Chinenses. Series prima. Ann. Mycol. 27: 418–434.

Vánky K. 2004. The smut fungi (*Ustilaginomycetes*) of *Bothriochloa*, *Capillipedium* and *Dichanthium* (*Poaceae*). Fung. Divers. 15: 221–246.

Wang SR, Piepenbring M. 2002. New species and new records of smut fungi from China. Mycol. Progr. 1: 399–408.